Energy efficiency policy update

4th ERIN meeting

March 2016
Bangkok, Thailand

The ERIN secretariat

General

- All the countries has, or about to, set up national energy efficiency target.

	National target
Brunei	To reduce total energy consumption by 63% and energy intensity to 45% by 2035 compared to a Business-As-Usual (BAU) scenario
Cambodia	20% reduction in the amount of energy consumed by 2035 compared to BAU
Indonesia	To reduce energy elasticity to less than 1 by 2025 and to reduce the intensity of final energy by 1% per annum until 2025.
Japan	To reduce final energy consumption around 13% by 2030 compare to BAU. To reduce electricity consumption around 17% by 2030 compare to BAU.
Korea	13% reduction in energy demand and 15% reduction in electricity demand by 2035
Lao PDR	There is no specific national strategy for energy saving, but considering the development of strategy and policy.
Malaysia	The draft “National Energy Efficiency Master Plan” was published in January 2014
New Zealand	Improving energy intensity (GJ per NZ$103) of 1.3% per annum.
Singapore	Energy intensity improvement of 35% by 2030.
Viet Nam	National energy conservation target is set for 2006-2010 as 3%-5%, and for 2010-2015 as 5%-8%.

Industrial sector

- Different in applied policy depending on industrial structure.

	Management	Standard / labeling	Financial support
Brunei	Voluntary	N/A	N/A
Cambodia	Regulatory	N/A (planning)	N/A
Indonesia	Regulatory	Standard + Labeling	Grant
Japan	Regulatory	Standard	Grant + Tax
Korea	Regulatory + Voluntary	Standard	Grant + Tax + Loan
Lao PDR	Voluntary	Standard (planned)	Tax
Malaysia	Voluntary	N/A	Grant + Tax + Loan
New Zealand	Voluntary	Standard	N/A
Singapore	Regulatory + Voluntary	Standard + Labeling	Grant + Tax
Viet Nam	Regulatory	Labeling	Tax

Commercial & residential sector

- Standard and labeling system is commonly applied.

	Management	Standard / labeling	Financial support
Brunei	Regulatory + Voluntary	Standard	N/A
Cambodia	Regulatory	NGuideline	N/A
Indonesia	N/A	Standard + Labeling	N/A
Japan	Regulatory	Standard + Labeling	Grant + Tax
Korea	Regulatory + Voluntary	Standard + Labeling	Grant + Tax + Loan
Lao PDR	Regulatory + Voluntary	Labeling (planned)	Grant
Malaysia	Voluntary	Standard + Labeling	Grant
New Zealand	Voluntary	Standard + Labeling	N/A
Singapore	Regulatory + Voluntary	Standard + Labeling	Grant + Tax
Viet Nam	Regulatory + Voluntary	Labeling	Tax

Transport sector

- Seems less addressed sector, i.e. remain room for policy side action.

	Management	Standard & labeling	Financial support
Brunei	N/A	Standard (planned)	N/A
Cambodia	N/A	N/A	N/A
Indonesia	N/A	N/A	Tax
Japan	Regulatory	Standard + Labeling	Grant + Tax
Korea	Regulatory + Voluntary	Standard	Grant + Tax + Loan
Lao PDR	Regulatory	N/A	Grant
Malaysia	N/A	N/A	Tax
New Zealand	N/A	N/A	N/A
Singapore	Regulatory + Voluntary	Standard + Labeling	Grant + Tax
Viet Nam	Regulatory	Labeling	N/A

Possible study area

Evaluation of national goal

- Identify the way how to achieve the goal.
  - Building-up the potentials
  - Cost analysis (identify cost effective way)
  - Possible cooperation among the region

Industrial sector

- Regulatory target setting.
  - sectoral benchmark

Transport sector

- Comprehensive policy development.
  - Target setting
  - Management
  - Financial support

Appendix)

Brunei Darussalam

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	National target : To reduce **total energy consumption by 63% and energy intensity to 45% by 2035** compared to a Business-As-Usual (BAU) scenario (Brunei Vision 2035-Energy White Paper 2014) A: Energy Management System that is compatible with the ISO 50001 (Development-2016; Implementation-2018) A: Energy Audit and Monitoring Policy (Development-2016; Implementation-2018) B: Accreditation and Promotion of Energy Service Company (ESCO) - Planned		
Industrial	B: In-house measures mainly by the oil & gas industries to improve operational efficiencies and reduce greenhouse gas emission.	N/A	N/A
Commercial and Residential	A: Control of the use of air-conditioner -temperature setting and operation hours (Government Buildings) A: Energy Efficiency & Conservation Guidelines for Non-Residential Buildings (Government Buildings-As of May,2015) B: Energy Efficiency & Conservation Guidelines for Non-Residential Buildings (Commercial Buildings) A: Project based energy efficiency measures such as the increased use of energy efficient streetlights (Government) B: Green building rating system (Planned) B: Energy Awards B: Energy Week B: Energy Club (Secondary/Post-Tertiary Schools & Colleges) B: Green building design & features for public houses under National Housing Programme	A: MEPS and Energy Labelling for Electrical Appliances (Residential) :- 1st Phase - Air conditioner (Waiting for endorsement) 2nd Phase - Refrigerator (Planned) 3rd Phase - Lighting and Water Heater (Planned)	N/A
Transport	N/A	A: Fuel Economy regulations for Passenger Cars (Planned)	N/A

Cambodia

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1) Cambodia Power Sector Strategy 1999-2016 • The focus of Cambodia's energy strategy is on the electrification policy 2) Cambodia Climate Change Strategic Plan 2014-2023 • The Climate Change Strategic Plan was announced in 2013. • Such aspects were indicated as the directions and strategies for the Climate Change Strategic Plan, which will run for 10 years, from 2014-2023. 3) NATIONAL POLICY, STRATEGY AND ACTION PLAN ON ENERGY EFFICIENCY IN CAMBODIA • Through cooperation between the Cambodian government and EUEI PDF, a report on energy-saving policies was released in 2013. • A 20% reduction in the amount of energy consumed by 2035 (compared to business as usual [BAU]) is given as the energy-saving target. 4) National Strategic Development Plan 2014-2018 •It is a policy implementation plan published in July 2014 and describes prioritized target areas and measures comprehensively. •In regards to energy-saving related measures, descriptions include the implementation of the above plans for climate change countermeasures and efficient energy consumption etc.		
Industrial	A 1) Reducing greenhouse gas emissions through improved energy efficiency in the industrial sector • Surveying the potential of energy saving and providing help for the development of the framework for the energy-saving policy with the support from the UNIDO		
Commercial and Residential	A 1) Designing, information gathering, and human resources development for an energy audit system for buildings • Finding a way to develop the system with the support from other countries 2) Circulars from the Prime Minister in order to curb power consumption at public facilities ・The indication of guidelines in order to reduce the amount of power consumed at public facilities		
Transport			

Indonesia

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1) Indonesia's policy on energy saving started back in 1982. It has been strengthened by Government Regulation 70/2009 on Energy Conservation and Government Regulation 79/2014 on National Energy Policy. The target is to reduce energy elasticity to less than 1 by 2025 and to reduce the intensity of final energy by 1% per annum until 2025. 2) Establishment of an energy law (2007) 3) Establishment of energy saving regulations (2009, 2012, 2013) 4) Energy Saving Support Associations (Energy Asosiasi Perusahaan Penunjang Konservasi Energi Indonesia: APKENINDO and Energy Efficiency and Conservation Clearing House Indonesia :EECCHI) to be Established.		
Industrial	A 1) Those energy users that consume more than 6,000 toe (ton of oil equivalent) annually bear various obligations as shown below: 2) To appoint an energy manager; 3) To formulate an energy saving program; 4) To inspect energy regularly; 5) To put recommendations from energy inspection into practice; 6) To create an annual report on the actual situation of energy saving under the jurisdiction of the ministers and heads of states, provinces, and cities; and 7) To inspect energy.	A 1) Standards must be in accordance with performance specifications for energy equipment and with methods to carry them out. B 1) The efficiency of energy equipment is labeled by their manufacturers and importers in accordance with regulations on labeling. Labeling for fluorescent light was issued in 2014.	A 1) Central and/or regional governments provide(s) the following entities with an incentive: Among energy users that consume more than 6,000 toe (ton of oil equivalent) annually and domestic manufacturers of energy saving facilities as provided for in Article 12 (2), applicable for those who succeeded in saving energy over a specific period.
Commercial and Residential		(Same as above)	
Transport			B 1) Low Emission Carbon Project (LECP): Eco car green tax system

Japan

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1) Energy saving law It was established in 1979 after experienced the Oil Crisis in 1970s. Require 1% per annum of efficiency inprovemnet. Currently it covers; • Industrial sector (which has above the threshold energy consumption amount) • Building (which has above the threshold floor area) • Transport (fleet operator. cargo owner) • Appliances (standard & labeling for designated appliances) 2) The Energy Basic Plan (April 2014) and corresponding policy document the Long term supply-demand outlook (July 2015)		
Industrial	A 1) 1% p.a. reduction for large energy consumer. (> 1500kl crude oil equivalent) 2) Specific target for very large energy consuming sectors 2) Reporting obligation for designated consumers. B 1) Voluntary commitment for GHG reduction, hence EE improvement, by business association.	A 1) Specific target for very large energy consuming sectors [Iron & steel, Power generation, Cement, Paper & pulp, Oil refinery, Petrochemical, Soda chemical]	A 1) Grant program B 1) Special amortization and tax deduction for green investment
Commercial and Residential	A 1) Reporting obligation for designated consumers. (building owner which has more than 300m2 floor space)	A 1) Require energy efficiency measure for designated building owner. 2) Top Runner system is applied to 28 appliances and building insulation materials.	A 1) Grant program B 1) Special amortization and tax deduction for green investment
Transport	A 1) Reporting obligation for designated consumers. Fleet operator: Rail: more than 300 cars Truck: > 200 trucks Bus: > 200 buses Taxi: > 350 cars Seaborne: >20,000ton Airborne: > 9,000ton Cargo owner: > 30 million ton-km	A 1) Require energy efficiency measure for designated fleet operator and cargo owner.	A 1) Grant program B 1) Special amortization and tax deduction for green investment

South Korea

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1) The 2nd Energy Master Plan(2014~2035) states that one of main 6 policy agenda is a transition to energy policies focused on demand management to achieve policy objective of 13% reduction in energy demand and 15% reduction in electricity demand by 2035, using tax reform, rate revision, ICT-based demand management, etc. 2) As sub basic plan of the 2nd Energy Master Pan, the 5th Rational Energy Use Plan (2013~2017) was established to state that • The national target is to reduce the final energy consumption by 4.1% and improve energy intensity by 3.8% in 2017 compared to BAU. • Target will be achieved by new demand side management (DSM) technologies, market schemes and stronger DSM policies in the electricity sector. 3) Measures for sectoral demand side management • Industrial sector: Self-generation agreements, industrial complex energy efficiency program • Transport sector : Enhance fuel efficiency, market-driven electric car dissemination • Buildings sector: Green re-modelling, wider adoption of mandatory energy efficiency labeling • Public sector: Replace obsolete street lighting to LED, support regional energy projects		
Industrial	A 1) Energy Audit and Energy Saving Consulting: mandate energy-intensive companies to undertake energy audit on a regular basis 2) Public or private parties that are planning land development such as urban, tourism, industrial complexes, must establish and consult their energy use plan before construction B 1) Green Growth Partnership (GGP): big firms provide technical guidance to SME on best practices and know-how about energy saving. 2) Energy Supporter: in-person technical service to SMEs in saving energy/reducing GHG emissions	A 1) Energy Management System (EnMS) 2) Int'l EnMS standards,(ISO TC 242): ISO 50001 (KS A ISO 50001), ISO 50003, in EnMS Auditing 3) EnMS KS A ISO50001 Certification Scheme 4) EnMS Infrastructure Support to SMEs target mgt. 5) EnMS Performance Evaluation Consulting Service 6) Systematic inspection programs for large businesses and global standard for high inspection quality 7) KEA Code: technical requirement for construction and installation of boiler and pressure vessel	A 1) subsidy to installers or designers of district cooling systems using integrated energy sys. B 1) Tax incentives (exemption) to investment in energy efficient facilities (Special Tax Treatment Control Act) C 1) Long-term and low-interest loans for energy efficiency facilities, prioritizing SMEs and ESCO facilities, investment, ICT-based EnMS 2) ESCO Program : financial support to businesses that retrofit energy facilities and guarantee the ensuing savings effect
Commercial and Residential	A 1) Building Energy Code Compliance for construction of buildings larger than 500m2 2) e-Standby Power: Office and home appliances B 1) Performance Evaluation of Eco-friendly Homes: energy saving eco-friendly house codes and performance program 2) Building Energy Management System (BEMS):: ICT-based Convergence Technology for Efficient Buildings 3) High-efficiency Appliance Certification	A 1) Building Energy Efficiency Certification for new apartments and office buildings (1-10 grade) 2) Ministry Notification on BEMS Korea Standard (Aug. 2014): Definition and general requirement 3) 'Guideline of rational energy use in public institutes' to increase awareness of energy savings B 1) Energy Efficiency Labeling: product's energy efficiency (1-5 grades)	A/B/C 1) Energy Efficiency Resource Market Pilot Program: Replace existing equipment with high-efficiency ones 2) ESCOs, DSM companies, etc. can apply with financial support (subsidy, tax, loan) 3) Most of programs in the left columns are offered a certain type of financial support.
Transport	A 1) Average Fuel Economy: Disclosure of driving distance per ℓ and CO2 emissions along with fuel efficiency level(1~5 grades) B 1) Electric Vehicle Battery Lease to make electric cars affordable/mandated public institutes to buy EVs 2) Korea's biggest island, Jeju was selected as the target for the pilot program	A 1) Vehicle Energy Efficiency Labeling and Standard: labeling standards and fuel efficiency testing procedures 2) Tire Fuel Efficiency and Labeling Program	A/B/C 1) Most of programs in the left columns are offered a certain type of financial support.

Lao PDR

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	"The National Socio-Economic Development Plan (2006-2010)" published in October 2006 stated the policy to promote environment management and, moreover, clean and highly energy efficient technologies and industrial development in industry and construction sectors. Laos is a developing country with relatively small energy consumption, and accordingly, there is no specific national strategy for energy saving. But the country is considering the development of energy-saving strategy and policy with the support provided by the Asian Development Bank (ADB). The energy-saving act has not been developed, but there is a plan to develop one within several years. The current energy saving target set by the Government of Laos is to reduce energy intensity by 10% by 2025. Receiving support from the U.N., World Bank, Japan and Thailand, the energy saving diagnosis by experts from other countries, energy saving classes, and training programs have been implemented.		
Industrial	B 1) The energy-saving diagnosis has been implemented for beer and cement plants with the support from Japan and others. 2) New proposal for further energy efficiency system improvement for beer plant	The "Electricity Act" stipulates that the responsible ministries and agencies establish, approve, and test the quality of domestically-produced or imported electric equipment in order to secure the safety and energy saving capability of electric machinery and equipment. Specific energy efficiency standards, however, have not been established. The issue is still being discussed and planned.	▪ LBC 1) B 2) B
Commercial and Residential	A 1) The Government of Laos promotes energy-saving of lighting equipment. 2) A plan to reduce the energy consumption by government institutions by 10% between 2006 and 2007 was implemented. B 1) With the support provided by the World Bank, energy saving measures were implemented on part of the buildings of public institutions. 2) With the support from Japan that includes the dispatch of experts (The Energy Conservation Center, Japan), part of the hotels are implementing energy saving activities.	There are fire protection standards and planning control, but no construction standard related to energy saving capability has been developed. The country once asked Japan for support (the Ministry of Land, Infrastructure, Transport and Tourism) for the establishment of a construction standards system. The energy efficiency standards and the labeling systems have not been established for electric appliances, etc., but a plan for a labeling system is being discussed based on international cooperation.	A 1) A B 1) A 2) A
Transport	A 1) Government announced to stop the import of used cars since February 2012 2) Government encouraged to increase public transport usage financed JICA, Japan	Details are unknown.	2) A

Malaysia 1

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1)"National Energy Efficiency Program" launched in 1991 2)"Malaysia Energy Center" established in 1998 → Promotion of energy saving, etc. 3)Energy saving promotion strategy for households, towns, cities, industries, and buildings was included in the "10th Malaysia Plan" in 2010. → Phase out incandescent lights by 2014. 4)The investigation for "National Energy Efficiency Master Plan" was completed in 2010. 5)An energy saving law was drafted in 2011 and was scheduled to be introduced in 2013. 6)The draft "National Energy Efficiency Master Plan" was published in January 2014. 7) Efficient Management of Electrical Energy Regulations 2008 (Electricity Supply Act 1990). 8) Malaysian standard MS 1525:2007, Code of practice on energy efficiency and use of renewable energy forfnon-residential buildings. 9) You may also wish to refer to chapter 6 in the Elevent Malaysia Plan 2016-2020. The chapter is about pursuing green growth sustatainability and resilience. It presented the progress on • Climate mitigation in reducing Malaysia's carbon footprint. • Climate adaptation in protecting the nation from the impact of climate change. • Enhancing conservation of the nation's ecological assets. The chapter also discuss about Malaysian focus areas in pursuing green growth for sustainability and resilience.		
Industrial	B 1) "Energy Efficiency Rules" 2) "Malaysian Industry and Energy Saving Improvement Project" (completed) GEF, UNDP Support Project 3) "Energy Saving Improvement Program of Malaysia" (Started in 2008) * Continuation of (2)		A 1) "Malaysian Power Supply Industry Trust Account" B 1) "Investment Incentives" 2) "Tax Exemption for Energy Saving Equipment" 3) "Tax Exemption for Environment Friendly Buildings" C 1) "Energy saving Funding and Financing for SMEs" 2) "Industry Development Finance Organization" 3) "Green Technology Financing Scheme"

Malaysia 2

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
Commercial and Residential	B 1) "ESCO" business 2) "Energy Audit and replacement of lighting to LED in Government Buildings" 3) Energy efficient buildings: zero energy building, low energy office building, Energy Committee headquarters building 4) Phase out incandescent lights by 2014 5) "National Energy Saving Consciousness Campaign" SWITCH! 6) "Basic Investigation to Realize Green Township Vision in Malaysia," Japan-Malaysia Cooperation 7) "Limiting Air Conditioner Temperature in Government and Municipal Offices to 24 Degrees" 8) "Energy savings program at major government hospitals " 9) "Green Procurement by Public sector"	A 1) 5 models are covered (Voluntary) 2) "Energy saving Guideline in Buildings" (Voluntary) 3) "Green Buildings Index" (Voluntary) 4) Low carbon city framework and assessment system (Voluntary) B 1) 7 products are covered (Voluntary)	(Same as the above) A 1) "Energy Saving Home Appliances Rebate Scheme" (SAVE Program)
Transport			B 1) "Tax Exemption for Hybrid Cars and Electric Vehicles"

New Zealand

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	Energy Efficiency and Conservation Act 2000: purpose is to promote, in NZ, energy efficiency, energy conservation and the use of renewable sources of energy. The Energy Efficiency and Conservation Authority (EECA) is a Crown entity responsible for giving effect to government policy on the promotion of energy efficiency, energy conservation and the use of renewable resources. EECA has the power to make grants, awards & loans for the purpose of achieving policy outcomes A 5-year national energy efficiency and conservation strategy works alongside the New Zealand Energy Strategy (2011-2021) which is government's 10 year plan. Priorities include: diverse resource development (renewables, non-renewables & embracing new technologies); environmental responsibility (framework provided by Resource Management Act 1991, NZ Emissions Trading Scheme); efficient use of energy (energy efficiency in homes, energy efficient transport, consumer information); secure and affordable energy (competitive energy markets, reliable supply, oil security).Energy efficiency target set at improving energy intensity (GJ per NZ$10[3]) of 1.3% p.a.. Electricity system: target of 90% renewable by 2025. Currently ~ 80%. Supported by a competitive open market without subsidies. Transmission and distribution networks are regulated monopolies under Commerce Act. Electricity Authority oversees operation of electricity market. Recent promotion of consumer switching, market solution allows customers to easily change their supplier.		
Industrial Business	New Zealand has few large scale energy intensive industries, sector dominated by small medium enterprise with relatively low energy cost profiles. Ministry of Business Innovation and Employment lead agency.	Aim is to encourage business to factor energy costs into investment, build energy management capability and capacity for undertaking energy audits. Building code provides minimum standards for energy use (heating, cooling) and conservation.	Government research and development funds for the development of renewable sources of energy and demand side management technologies. Champion good practice e.g. Annual EECA Energy Conservation Awards.
Commercial and Residential	Many homes inadequately insulted resulting in productivity loss and increased cost of health care. Management of energy savings is voluntary. Lack of information, owners and property investors lack incentives to improve energy efficiency	Encourage of voluntary solutions; development of "Homestar" rating tool to assess building energy performance. Building code sets minimum standards; energy advice and support targeted at householders; information when buying, renovating and designing homes.	Minimal direct government financial support, look to facilitate market based solutions. Upgrades to government owned building stock. Government led campaign to improve insulation and heating in homes. Target of improving insulation in188,500 homes.
Transport	Ministry of Transport responsible for promotion of efficient transport system: integration of freight, improvements to network, greater of public transport. Investment and maintenance undertaken by a central funding agency and local units of government.	Encourage use of alternative modes of transport, provide information on choice, facilitate entry of alternative fuels, including electric vehicles, and run audit programmes.	Government funding to support improvements to the network, partial electrification of rail network. Funded from taxation and levies.

Singapore 1

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
General	A 1) In line with Intended National Determined Contribution (INDC), submitted to UNFCCC ahead of COP21, Singapore intends to reduce its Emissions Intensity by 36% by 2030 in comparison to 2005 levels, and stabilize its emissions with the aim of peaking around 2030. 2) "National Climate Change Strategy" 2012: Using less carbon-intensive fuels and increase energy efficiency in all sectors of the economy remain core strategy to mitigate GHG emissions. In accordance with Climate Change Strategy, energy efficiency efforts in various sectors are being coordinated by National Environment Agency (NEA) under Energy Efficiency Singapore Programme Office (E2PO) comprising members from other ministries and agencies. A national energy efficiency plan developed by E2OPO- Energy Efficient Singapore (E^2 Singapore) focuses energy efficiency efforts under major domains as follows: ▪ Remove Market Barriers to promote energy efficient technologies and measures, ▪ Raise awareness, Capacity Building, and ▪ Promote R & D for energy efficient technologies 3) In order to support the implementation of the E^2 Singapore , the Sustainable Energy Fund (SEF) of S$50 million has been established. 4) Singapore Sustainable Blueprint (SSB) 2015 has set out an ambitious target of energy intensity improvement of 35% by 2030. 5) Other key targets (related to energy saving/efficiency) announced under SSB 2015 and further regulations/standards/labelling schemes under ongoing efforts have been mentioned in subsequent slides under the major domain of Industry, Commercial/Institutional and Residential and Transport . 6) $ 140 Million Energy Innovation Research Programme: R & D efforts for innovative energy efficient technologies/solutions 7) $300 million National Innovation Challenge on Energy Resilience for Sustainable Growth: to develop cost competitive solutions that can improve energy efficiency, reduce carbon emissions and increase energy options for Singapore 8) Green Building Innovation Cluster (GBIC): Platform to demonstrate promising building solutions and build capabilities in energy efficiency-an integrated research, development and demonstration hub		

Singapore 2

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
Industrial	A 1)As an effort to put in-place mandatory energy management practice, Energy Conservation Act (ECA) came into effect in April 2013-Energy intensive companies (Companies consuming at least 15GWh-electricity or 54TJ-fuel or steam per year) are required to appoint an energy managers, submit an annual report stating their energy usage and greenhouse gas emissions, and develop an energy efficiency improvement plan. Currently, 170 companies are under this regulation. B 1)Promotion of cogeneration and tri-generation (the integrated production of electricity, heat and chilled water) in the power generation sector 2)Implementation of the Energy Efficiency National Partnership Program (EENP): A Voluntary partnership programme to support companies in their energy efficiency efforts through learning activities, energy efficiency-related resources, incentives and recognition 3)Industry Led Initiatives: A collective target to improve energy intensity of biomedical manufacturing industry by and annual average of 6% among the energy workgroup 4)Encourage energy efficiency in industries through Energy Performance Contracting (EPC) under ESCO model	A. Minimum Energy Performance Standards (MEPS) for home electric appliances B. Mandatory Energy Labelling schemes for home electric appliances	A 1) Design for Efficiency Scheme (DfE): Encourage to design energy and resource efficient facilities-Co-funding up to 80% A 2) Grant for Energy Efficiency Technologies (GREET) and the Investment Allowance (IA): Grant and tax incentives for industrial facility owners for investing in energy efficient technologies or equipment A 3) Energy Efficiency Improvement Assistance Scheme (EASe): Co-funding for the cost of engaging accredited energy services companies (ESCOs) to conduct energy audits and identify energy efficiency improvement measures A 4) Singapore Certified Energy Manager (SCEM): Training grant to encourage professionals-Develop local expertise and capabilities in professional energy management B 1) Tax incentives for investment in Energy efficient technologies or facilities under IA B 2) Accelerated Depreciation Allowance for Energy Efficient Equipment and Technology (ADAS): Accelerated depreciation benefit for replacement of old energy intensive equipment with new or for new installations

Singapore 3

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
Commercial, Institutional & Residential	A 1) The Green Building Master Plan-3rd Phase: With a broad vision of greening 80% of the buildings, this phase of Master Plan focuses to accelerate the green building agenda with three broader strategic goals-Continued Leadership, wider collaboration & engagement and Proven Sustainability performance in buildings. Three major initiatives include: a $52 million fund for the Green Buildings Innovation Cluster,$50 million Green Mark Incentive Scheme for Existing Buildings & Premises, and a new award – the Green Mark Pearl Award for developers. 2) Mandatory energy auditing of building cooling system every three year B 1) Energy Services Companies (ESCOs) Accreditation Scheme: To encourage growth of ESCOs and enhance quality of services 2) Save Energy Save Money Initiative: To encourage households to reduce their energy use by practicing simple energy-saving habits. 3) Online Life Cycle Cost Calculator for electrical appliances, Tips on Home Energy Audit 4) Public Sector Taking the Lead in Environmental Sustainability (PSTLES): Initiative to encourage energy efficiency in public sector agencies 5) Guaranteed Energy Savings Performance (GESP) contracting model: Promote liaisioning with ESCOs for enjoying guaranteed energy performance and savings during the contract period	A 1) Minimum Green Mark Standards for new buildings: Enabling 28% energy efficiency from 2005 codes 2) Minimum Energy Performance Standards (MEPS) for home electric appliances 3) Green Data Centre Standard: Considering Data centres (DCs) an extremely energy-intensive facilities, Infocomm Development Authority of Singapore is working with other agencies to develop a Singapore Standard for Green DCs B 1) Mandatory Energy Labelling schemes for home electric appliances 2) Green Mark Ratings for existing and new buildings. 3) The Energy Smart label for office: Encouraging offices to perform in top quartile in terms of energy efficiency and indoor air quality	A 1) Green Mark Gross Floor Area (GM-GFA): incentive scheme and Green Mark Incentive Scheme for Design Prototype (GMIS-DP): Provision of financial incentives (in terms of additional floor area) for achieving higher tier green mark ratings and funding support for the design of breakthrough prototypes that can achieve ratings beyond Green Mark Platinum 2) Green Mark Incentive Scheme for Existing Buildings (GMIS): Incentives to offset part of the retrofitting costs to improve the energy efficiency of existing buildings 3) Low-interest loan for energy efficiency retrofits in exiting buildings 4) Subsidies for the cost of energy saving diagnosis by ESCO. B 1) Pilot Building Retrofit Energy Efficiency Financing (BREEF) Scheme : To support building owners with the high upfront capital required for energy efficiency (EE) retrofits

Singapore 4

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory, B: Voluntary	A: Standard, B: Labeling	A: Grant, B: Tax, C: Loan
Transport	A 1) Carbon Emissions-Based Vehicle Scheme (CEVS): to encourage purchase of low carbon emission vehicles 2) Target to achieve 75% Modal share of journeys during peak hours made via public transport 3) Continuous expansion and improvement of train infrastructure and bus networks-double the length of train network by 2030 4) New regulations on the composition of petrol and diesel fuel supplied in Singapore from 2017 onwards. 5) Vehicle Quota System (VQS) to limit the vehicle population: Certificate of Entitlement (COE) calculated based on the sustainable vehicle population in long term 6) Electronic Road pricing (ERP) to manage vehicle usage: Levied a charge (on the basis of fuel grade) on vehicle using congested portion of road during peak hours B 1) Walk2Ride programme: Safe and Pleasant Walking for Everyone-connected shelters walkways 2) National Cycling Plan: Expand island-wide cycling paths from 230 km today to a network stretching over 700 km by 2030 3) Testing of clean vehicle technologies	A 1) Higher emission standards for vehicles: Euro V for Diesel vehicles, Euro IV for Petrol vehicles B 1) Fuel Economy Labelling Scheme for cars and Light goods vehicle: Assist consumers to choose greener vehicles	A 1) Early Turnover Scheme: Incentive scheme to encourages vehicle owners to upgrade older and more pollute pre-Euro and Euro I diesel vehicles to newer Euro V-compliant vehicles instead. B 1) Rebates for low carbon emissions vehicles while surcharge for high carbon emission vehicles under CEVS
Others	A 1) Waste to Energy Plants (WTE): 4 Waste-to-Energy (WTE) plants in operation- contributing 2–3% of the electricity generated in Singapore, plan to add more plants by 2018 A 2) Integrating Water and Waste Management by 2024: Broader vision to save energy A 3) Raise the adoption of solar power in electricity system to 350 MWp by 2020		

Vietnam

Policy	Management of Energy Saving	Standard & Labeling	Financial Support
Sector	A: Regulatory B: Voluntary	A: Standard B: Labeling	A: Grant B: Tax C: Loan
General	A 1) Introduction of financial support and energy labeling systems aimed at the promotion of energy saving 2) Establishment of responsibilities and obligations of businesses for the formulation and implementation of energy saving plans 3) Designation by the Ministry of Industry and Trade of "Major Businesses of Energy Use," which consume a large amount of energy annually 4) Establishment of "Major Businesses of Energy Use," including the formulation of annual and 5-year plans for the rationalization of energy use and designation of an energy manager 5) Introduction of an obligatory measure requiring the attachment of energy labels to equipment selected for energy labeling 6) Preferential tax treatments for production of energy saving products, such as reduction or exemption of export and import duties and of corporate income tax, and exemption of customs duties on equipment to be used in the research into development of energy saving technologies and on energy saving products that cannot be manufactured domestically, among others 7) National energy conservation target is set for 2006-2010 as 3%-5%, and for 2010-2015 as 5%-8%.		
Industrial	A 1) Formulation of an annual energy saving plan 2) Introduction of highly energy-efficient facilities 3) Maximum use of daylight and ventilation 4) Implementation of regulations on the maintenance of production lines aimed at the prevention of energy loss 5) Sequential dismantlement of energy consuming facilities with old technologies	B 1) Industrial equipment including three phase distribution transformer, and electric motor; and industrial boilers	B 1) Exemption of customs duties on equipment to be used in the research into development of energy saving technologies
Commercial and Residential	A 1) Design of buildings that harness nature so as to reduce energy consumption by lighting, ventilation, and air conditioners 2) Use of heat insulators produced based on national or international specifications 3) Establishment of monitoring systems for the supply of electric power and heat B 1) Preferential installment of highly efficient facilities using renewable energy in lighting equipment for public use 2) Encouragement of homes using natural light, ventilation, heat insulators, and energy saving electric equipment 3) Encouragement of the restrained use of large-capacity facilities during peak hour(s)	B 1) Various Lighting 2) Air conditioner 3) Refrigerator 4) Washing machine 5) Electric cooker 6) Electric fan 7) TV 8) Copy Machine 9) Monitor 10) Printers and Others.	B 1) Preferential tax treatments for production of energy saving products, such as reduction or exemption of export and import duties and of corporate income tax B 2) Exemption of customs duties on energy saving products that cannot be manufactured domestically, etc. B 3) Obligatory use of products with the highest energy conservation labeling in relation to items procured by governmental agencies
Transport	A 1) Use of LPG, natural gas, electric power, hybrid fuels, and biogas as oil alternatives 2) Selection of routes and transport methods that optimize use of fuel , and establishment and adoption of regulations on maintenance and repair from the perspective of fuel reduction 3) Adoption of advanced technologies, including research into low-fuel-consumption facilities, and use of clean fuel, renewable energies, and other alternative fuels	B 1) Passenger cars less than 7 seats	